

Project Leader's Report

November - 2002



USDA Forest Service - Southern Research Station - 320 Green Street Athens GA 30602 - <http://www.srs.fs.fed.us/disturbance>



DMISE
DISTURBANCE MANAGEMENT
IN SOUTHERN ECOSYSTEMS

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Technology Transfer:

- Boyd Edwards conducted tours on the Hitchiti Experimental Forest for groups from Abraham Baldwin College and the Society of American Foresters. He discussed his research on natural regeneration, advantages of site preparation for Piedmont loblolly pine, and introducing longleaf pine for restoration and prevention to sites impacted by southern pine beetle infestation.

- The Wood Quality Consortium held its annual fall meeting on November 12, 2002, at the University of Georgia, Warnell School of Forest Resources in Athens. Alex Clark, co-director of the Consortium, attended and presented an update of current research.

- Gary Achtemeier attended the 16th International Congress of Biometeorology, held in Kansas City, MO. Gary was part of a panel

discussion on bio-terrorism. He also presented a paper on interface modeling to connect behavior of airborne biological organisms with weather models.

- The first conference on Fire Research in the South was held in Sarasota, FL. Achtemeier, Callahan, Goodrick, Outcalt, and Wade presented summaries of current research. Stanturf was a panelist on research needs and moderated a session on fire risk research. Pat Outcalt and Janet Revell assisted with organization and registration. Other unit staff attended (Forbus, DiCosty, Rideout, and R. Phillips).

First conference on Fire Research



Outreach Activities:

In November, four formal tours were given at the Brender Demonstration Forest: the Southeastern Section of the Society of American Foresters, Georgia Piedmont Natural Resources Cooperative, Mercer University Biology Lab, and an Abraham Baldwin College silviculture class.

The Forest Inventory and Analysis staff used the Brender Demonstration Forest twice for training and testing field crews from the Southern Research Station and Georgia Forestry Commission.

Approximately 1000 hunters participated in weekend deer hunts on the Hitchiti Experimental Forest, 36 visitors registered at the Hitchiti Interpretive Trail, and 40 people stopped by the office for information and assistance.

Two new demonstrations of wildlife plantings were installed at the Brender Demonstration Forest, and cherrybark and white oak plantings were installed in November.

- Gary Achtemeier installed the recent version of PB-Piedmont at the Oconee National Forest and trained Jim Stang on its use.

- Ken Outcalt and cooperators from Auburn University, University of Florida, and Florida A&M conducted a tour of the Southern Coastal Plains Fire and Fire Surrogates Study at Myakka River State Park, FL. The fieldtrip looked at one of the blocks of the study, with presentations of initial results of treatments on trees, understory, fuels, birds, small mammals, herps, bark beetles, soils and root diseases.



Field trip at Myakka River State Park, following the Fire Research Conference

- Joe O'Brien presented an invited seminar at the Jones Ecological Center on tropical tree ecophysiology. He met with Robert Mitchell to discuss their collaborative research on longleaf pine physiology.

- Ken Outcalt attended the Fourth Longleaf Alliance Regional Conference - *Longleaf Pine: A Southern Legacy Rising From the Ashes*, held at the Pine Needles & Mid Pines Resort, Southern

Pines, NC. Outcalt presented a poster on "Developing Management Options for Longleaf Communities of the Gulf Coastal Plain." The poster covered the logistics and immediate results of different treatments at the Fire and Fire Surrogate study at the Solon Dixon Forestry Education Center near Andalusia, Alabama.

- Outcalt met Jim McIver, National Program Leader of Fire and Fire Surrogate Study, at the Solon Dixon Forestry and Education Center operated by Auburn University. Accompanied by the Director of the center, Rhett Johnson, and the Assistant Director, Dale Pancake, they toured the fire surrogate study site. They discussed progress of the study and potential usefulness of research results to managers of similar sites across the region. Pancake and Outcalt provided history, ecology, and silviculture for longleaf pine communities, such as those used for the study.

- Alex Clark conducted a training session on felled tree taper data collection at the Savannah River Site. Personnel from Region 8 and the Savannah River Forest Station attended the one-day session to learn the correct procedures for collecting felled tree measurements for validating the timber volume equations developed by Alex (SE-282), which are used in Region 8 timber sales.

- Yong Liu co-authored a presentation given by S.C. Liu (Academia Sinica, Taiwan) at the International Conference on Environmental History, held 13-15 November in Taipei, Taiwan. The talk was entitled "Atmospheric Impacts of the Deforestation of Taiwan."

- Mac Callaham co-authored a poster presented at the Soil Science Society annual meeting, entitled "Enriched Background Isotope Study (EBIS): Application of an Ecosystem Scale ¹⁴C Tracer to Soil-Carbon-Cycle Studies." Presenter and lead author was Paul Hanson, Oak Ridge National Lab.

- Callaham co-authored an oral presentation given by Mike Vickers at the Entomological Society of America annual meeting in Fort Lauderdale, FL. The paper was entitled "Spider community responses to burning and thinning in a Piedmont forest in upstate South Carolina."

- Tom Waldrop and Helen Mohr participated in the fuels discipline meeting for the National Fire and Fire Surrogate Study. A group of 10 cooperators were introduced to FOFEM (First Order Fire Effects Model) and to the Fire and Fuels Extension to FVS (Forest Vegetation Simulator). Elizabeth Reinhardt of the Missoula Fire Lab conducted the orientation.

Meetings / Reports:

- Ralph DiCosty and John Stanturf attended the Soil Science Society of America annual meeting, held in Indianapolis, IN. The research community has a great interest in carbon sequestration and soil organic matter characterization and interest continues in defining and monitoring soil quality. Stanturf met with Stephen Schoenholtz, Oregon State University, to discuss the cooperative research on soil quality response of restoration treatments, begun when Schoenholtz was on the faculty at Mississippi State University.

- DiCosty and Stanturf attended the USDA Symposium on Natural Resource Management to Offset Greenhouse Gas Emissions, held in Raleigh, NC. The Southern Global Change Program organized the workshop and SRS researchers were well represented at the meeting. Rich Birdsey, Northern Global Change Program Manager, stated that the key research priorities were integrating and improving monitoring programs, better understanding below-ground processes, identifying practices for managed forests to maintain or increase carbon storage, and quantification of the uncertainty of estimates and improving understanding of future risks of forest carbon management. Phil Dougherty, MeadWestvaco, argued for a consortium for research on carbon sequestration in managed forests.

- Stanturf met with Ted Leininger, Project Leader for the Center for Bottomland Hardwoods Research in Stoneville, MS, to discuss on-going research collaboration. Leininger will continue to support the fertigation pilot study at Stoneville and do the microbial diversity research on the study.

- Joe O'Brien attended a Workshop on the PG-3 Model, held at Duke University, Durham, NC, and hosted by the Soil Productivity research unit at RTP, NC. This is a simple processed-based stand-level model of forest growth developed by Joe Landsberg and Dick Waring.

- DiCosty and Stanturf met with Mark Coleman, Director of the Short Rotation Woody Crops Cooperative and Felipe Sanchez, Research Soil Scientist at Research Triangle Park, NC, to discuss cooperative research on soil carbon on

the fertigation experiment at the Savannah River Site.

- Gary Achtemeier, Scott Goodrick, and Yong Liu met with Tom Mote, University of Georgia, to coordinate software infrastructure for SHRMC.

- "Humans, Fire and Forests: Social Science Applied to Fire Management," is the title of a conference to be held in Tucson, AZ, January 28-31, 2003. Sponsors include Northern Arizona University, Forest Service North Central Research Station, Western Rural Development Center, and the University of Wisconsin-Madison. Five themes will be discussed: fire across the gradient, individual perceptions of fire and fuel treatments, communities and fire, cultural perceptions and experiences with fire, and policy, institutional, and political dimensions.

- Tom Waldrop met with Steven Jeffers, Lisa Riley, and Drew Zwart of the Clemson University Department of Plant Pathology and Physiology. They discussed methods for using the National Fire and Fire Surrogate Study to determine impacts of fuel reduction treatments on incidence and impact of diseases in pine and hardwood stands.

- Waldrop attended the thesis defense of Laura Zebehazy of the Clemson University Department of Forest Resources. Ms. Zebehazy studied the impacts of fuel reduction treatments on populations of avifauna and arthropods. Her work was funded through the RWU as a part of the National Fire and Fire Surrogate Study. Congratulations to Laura on a job well done!



Tom Waldrop

Statistics on November 27 to discuss cooperative research. Waldrop and Bridges are developing methods to use multivariate techniques to provide an unbiased classification of fire intensity in field study plots.

- Yong Liu met with Hongbin Yu, Research Scientist at Georgia Tech, to discuss applications of one-dimensional atmospheric-land surface coupled models to modeling fire-atmospheric interactions.

- The parallel version of CMAQ software released this year has been installed and run successfully on the SHRMC Beowulf computer, the first case reported in the CMAQ community. Models-3/CMAQ is a powerful air quality modeling system developed by EPA and installed on the SHRMC's computation facilities. It has four components: Sparse Matrix Operation Kernel Emission (SMOKE), Meteorology-Chemistry Interface Processor (MCIP), Package for Analysis and Visualization of Environmental data (PAVE) and the Community Multi-scale Air Quality (CMAQ) model. Models-3/CMAQ is a portion of SHRMC's Project 4S (Southern Smoke Simulation System) to estimate and predict the air quality impacts of prescribed and wild fires in the South. Running CMAQ in parallel should increase speed and hopefully reduce the memory requirements of the software. Tim Giddens was able to install the software to run on the LINUX operating system, using 8 CPUs.

- Waldrop met with Dr. William Bridges of the Clemson University Department of Experimental

Personnel News:

• Joe McConnell, a GS-4 Forestry Technician at the Solon Dixon Center will be leaving, effective December 14, for a job in the business sector. He has been a valuable employee and well-liked colleague. We wish him the best in his future endeavors.

• Corey Babb reported for the Chemist position in the Soil Chemistry/Nutrient Cycling Laboratory on November 18, and is presently working with Ralph DiCosto to optimize the operation of the Perkin Elmer C/N Analyzer. Corey received a BS in Biology with Chemistry minor from Berry College, Rome, GA.



Corey Babb (Left) and Ralph DiCosto (Right) in front of the Perkin Elmer C/N Analyzer

• The Forest Service will become the supporting U.S. agency for the Short Rotation Working Group of the International Energy Agency (Task 30). John Stanturf and Bryce Stokes, Washington Office, will share leadership for the U.S. participation.

GPRA Accomplishments:

Category	FY 2002 Total	FY 2003 To Date
Number of Refereed Journal Publications	9	3
Number of Non-Refereed Publications (include abstracts)	53	1
Number of Publications (refereed + non-refereed)	62	4
Number of Tours	46	19
Number of Short Courses/Training	8	3
Number of Invited Presentations to Scientific Organizations	6	1
Number of Invited Presentations to Lay Organizations	25	26
Volunteer Presentations to Scientific Organizations (non-GPRA)	28	8
Number of Technology Transfer Activities (other than above)	172	46
Outside Funding	\$3,227,500	\$45,563

“Great Leaders are almost always great simplifiers, who can cut through argument, debate, and doubt to offer a solution everybody can understand.”

General Colin Powell

E-Technology



Visit our Websites at :

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<http://www.srs.fs.fed.us/iufro>

For information on the fire conference go to <http://www.srs.fs.fed.us/fireconference>

<http://www.srs.fs.fed.us/disturbance>

The SRS Disturbance and Management of Southern Ecosystems Website is passing through a series of updates. The goal of the website is to better inform readers of current research. We have links to research presentations, our Experimental Forests and to background information on each scientist's research interests and accomplishments.

News from around the Region:

- Tom Quigley, Assistant Director for Research at the Rocky Mountain Research Station, has been named the new Director of the Pacific Northwest Research Station. <http://www.fs.fed.us/pnw>
- Jim Sedell, Inter-Deputy Water Coordinator, has been named the Director, Wildlife, Fish, Water, and Air Research staff, Washington Office.

- Newly elected Fellows of the Society of American Foresters include some familiar faces. Congratulations to Bill Boyer, SRS-Auburn; Jim Granskog, SRS-New Orleans; Ken Arney, Region 8-Atlanta; and Rhett Johnson, Auburn University-Andalusia. This is an exceptional recognition bestowed on them by their peers for outstanding service

to the society and to the profession.

<http://www.safnet.org>



Publications :

FY 2003 (*denotes new publication this month)

Rideout, S. and Oswald, B.P. 2002. Effects of prescribed burning on vegetation and fuel loading in three east Texas state parks. *Texas J. Science* 54(3): 211-226.

Stanturf, J.A. and Madsen, P. 2002. Restoration concepts for temperate and boreal forests of North America and Western Europe. In: *Forest Ecosystems: Ecology, Conservation and Sustainable Management* (eds. Jiang Z., Centritto M., Liu S. & Chiatante D.). *Plant Biosystems* 136, 143-158.

Stanturf, J.A., Wade, D.W., Waldrop, T.A., Kennard, D.K., and Achtemeier, G.L. 2002. Fire in Southern Forest Landscapes. P. 607-630 (Chapter 25) In Wear, D.M. and Greis, J.G., editors, *Southern Forest Resource Assessment*. Gen Tech Rep. SRS-53. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station.

Escalante, F., Monreal, R., Rangel, S., **Stanturf, J.**, Arseneau, C., Nantel, P. 2002. Forest plantations in North America. Report to the North American Forestry Commission. 26 pp.

Upcoming Events :

2002

Dec 4-6

Wildfire 2002: Surviving in the Interface Danger Zone, Kansas City, MO; <http://www.iafc.org/pdf/conf/urbintr02.pdf>

***Dec10-12**

Inductively Coupled Plasma Optical Emission Spectrometry Training course, Perkin Elmer Instruments Corporation, Shelton, CT; DiCosty to attend

***Dec16-18**

Flow-Injection Analysis Training Course, Hach Corporation, Loveland, CO; DiCosty and Babb to attend

2003

Jan 14-17

National Fire Plan Coordination Meeting, New Orleans; Achtemeier, Outcalt and Waldrop to attend.

***Feb 11-13**

Southern Research Station Management Team meeting, Asheville; Stanturf to attend

Feb 24-27

Southern Silvicultural Research Conference, Biloxi, MS., unit staff to attend.

***Feb 27-Mar 1**

Coastal Plain Chapter, Society for Ecological Restoration annual meeting, Athens, GA

Mar 3-7

Functional Assistance Visit; Asheville admin team led by Jay Hundley, to Athens, GA.

Mar 12-14

Workshop on Forest Fire Modeling and Prediction in the Southeast United States, Tallahassee, FL; Goodrick, Liu, Achtemeier, Waldrop, and Stanturf to attend.

Mar 23-27

Molecular Studies Of Soil Organic Matter 225th ACS International Meeting New Orleans, LA; DiCosty to attend <http://membership.acs.org/g/geoc/>

Apr 21-23

Dean's Tour to be held in at the University of Georgia in Athens, Georgia.

Apr 23-25	IUFRO Conference on Decision Support for Multiple Purpose Forestry: A Transdisciplinary Conference on the Development and Application of Decision Support Tools for Forest Management, Vienna, Austria; Kennard to attend and present.	Sep 21-28	12 th World Forestry Congress, Quebec City, Canada; Stanturf to attend. http://www.wfc2003.org
May 11-16	Fifth International Conference on Science and the Management of Protected Areas (SAMPAA V), University of Victoria, Victoria, British Columbia, Canada. The theme will be Making Ecosystem Management Work: Connecting Managers and Researchers. For more information see http://www.sampaa.org	Oct 4-8	3rd International Wildland Fire Conference, sponsored by the North American Forest Commission's Fire Management Working Group, Sydney, Australia.
May 12-15	2 nd Forest Engineering Conference, hosted by SkogForsk (The Forestry Research Institute of Sweden), Växjö, Sweden; Stanturf to present poster. http://www.skogforsk.se/fec	*Oct 25-29	Society American Foresters Annual Meeting, Buffalo, NY
Jun 16-20	Fourth Annual North American Forest Ecology Workshop, Oregon State University in Corvallis, OR. Abstracts due Jan 17, 2003. http://outreach.cof.orst.edu/nafev/	*Nov 2-6	Soil Science Society of America annual meeting, Denver, CO
Jun 22-25	57th Annual Meeting of the Forest Products Society, Doubletree Hotel, Bellevue, WA. Alex Clark will make presentation.	*Nov 13-15	Society for Ecological Restoration 15 th International Conference, Austin, TX
Jul 20-24	10 th North American Forest Soils Conference, Sault Ste. Marie, Ontario, Canada; Stanturf, Callahan to attend and present posters. http://www.fs.fed.us/forestsoilsconference .	Nov 16-20	Second International Congress On Wildland Fire Ecology And Fire Management, in conjunction with the Fifth Symposium on Fire and Forest Meteorology
Aug 11-14	IUFRO Working Group for Seed Physiology and Technology conference to be held at the Georgia Center, Athens, GA.	*Nov-Dec	IEA Short Rotation Bioenergy (Task 30) meeting, New Zealand and Australia
Aug 17-24	IUFRO UNIT 8.08.02 Impact of wind on forests conference, 'Strong Winds and Trees: ecology and management' Zurich, Switzerland	2004 *Aug	Society for Ecological Restoration 16 th International Conference, Victoria, British Columbia
*Sep 7-10	Council on Forest Engineering annual meeting, Bar Harbor, ME; http://www.forest-resources.umaine.edu/nercofe/cofe2003.htm	*Oct 31-Nov 4	Soil Science Society of America annual meeting, Seattle, WA
		*Nov	Short Rotation Woody Crops Operations Working Group Biennial Meeting, Aiken, SC; dates TBA
		2005 Aug 8-13	IUFRO World Congress, Brisbane, Australia; Stanturf to Attend.
		*Aug or Sep	Society for Ecological Restoration 17 th International Conference, Zaragoza, Spain
		*Nov 6-10	Soil Science Society of America annual meeting, Salt Lake City, UT

SRS-4104 Project Leader's Report

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